

From: [Schaub, Mike](#)
To: ["Sikes, Monica"](#)
Cc: ["Brigette Firmin"](#); ["Trahan, Amy"](#)
Subject: RE: [EXTERNAL] heelsplitter study by Powell
Date: Thursday, November 14, 2019 8:39:00 AM

Yes, it is a challenge. But I actually enjoy it.

Mike Schaub
Water Quality Standards Program
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US EPA Region 6-Dallas
214-665-7314

From: Sikes, Monica <monica_sikes@fws.gov>

Sent: Wednesday, November 13, 2019 10:07 AM

To: Schaub, Mike <Schaub.Mike@epa.gov>

Cc: Brigette Firmin <brigette_firmin@fws.gov>; Trahan, Amy <amy_trahan@fws.gov>

Subject: Re: [EXTERNAL] heelsplitter study by Powell

Hi Mike,

Yes, the drum is widely accepted as primary host. I am not sure if you will find any DO literature addressing your other concerns at such a fine scale. All of us can relate to this kind of scenario you are experiencing; sometimes having to evaluate potential impacts to species with a level of uncertainty in the data that can only be addressed by applying professional judgement using the best available science to develop reasonable conclusions. Gosh, I know I personally struggle with this as well!

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"I have not failed. I have just found 10,000 things that do not work." Thomas Edison

On Tue, Nov 12, 2019 at 5:03 PM Schaub, Mike <Schaub.Mike@epa.gov> wrote:

Thanks Monica! This brings to mind the question about whether these species, or similar species, serve as hosts for heelsplitter glochidia. Are these studies pertinent to the potential of this particular mussel's survival? The attached studies seem to suggest their host to be only the freshwater drum.

From Roe et al.: "While all species of unionids do not appear to be host-specific, the genus *Potamilus* parasitizes the freshwater drum (*Aplodinotus grunniens*) almost exclusively (Surber, 1913; Wilson, 1916; Cummings et al., 1990)."

From Brown and Daniel: "The Freshwater Drum (*Aplodinotus grunniens*), the fish host of the

Inflated Heelsplitter, was the 17th most abundant out of 44 fish species sampled in the Amite River. Its relatively rare host fish, anthropomorphic disturbances from upstream gravel mining, or increased urbanization of the watershed may be important in explaining the threatened status of the Inflated Heelsplitter."

I've seen one reference to a paper that says that the drum is also sensitive low DO, but it wasn't specific to a particular concentration.

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From: Sikes, Monica <monica_sikes@fws.gov>

Sent: Friday, November 8, 2019 8:43 AM

To: Schaub, Mike <Schaub.Mike@epa.gov>

Cc: Brigitte Firmin <brigitte_firmin@fws.gov>; Trahan, Amy <amy_trahan@fws.gov>

Subject: Re: [EXTERNAL] heelsplitter study by Powell

Mike, I did a little asking around and talked to Jeff Powell about getting these papare (actually the thesis was on the link - I just missed it. I have attached it her anyway. See if these help. As far as I can tell, this was what I was referring to during our conversation. have a good weekend, Monica

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On Wed, Nov 6, 2019 at 2:50 PM Schaub, Mike <Schaub.Mike@epa.gov> wrote:

Thanks for sending this Monica. I'm sorry to hear you're moving on, but I look forward to working with Brigitte and Amy moving forward.

Back in May, we were discussing the possible impacts of low DO on host fish species to Alabama heelsplitter glochidia. The abstract to this paper does conclude that DO levels of 4mg/L may not be adequate for all the species tested, although I'm unaware if these species serve as such hosts. I have read that freshwater drum are the most likely hosts, hence my original question about the DO needs for host species. If you come across additional info on this, please let me know! Thanks so much!

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From: Sikes, Monica <monica_sikes@fws.gov>

Sent: Wednesday, November 6, 2019 2:01 PM

To: Schaub, Mike <Schaub.Mike@epa.gov>

Cc: Brigitte Firmin <brigitte_firmin@fws.gov>; Trahan, Amy <amy_trahan@fws.gov>

Subject: Re: [EXTERNAL] heelsplitter study by Powell

Mike, I do not have a hard copy of the thesis. I scanned the digital drives for it but haven't had luck yet. I can email Jeff Powell and ask about it if this is what you were thinking of. Just let me know. Thanks!

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On Wed, Nov 6, 2019 at 1:58 PM Sikes, Monica <monica_sikes@fws.gov> wrote:

<https://www.sciencebase.gov/catalog/item/57e2b6bde4b090825004599f>

I wonder if I was citing this summary at the above link. I can't find a hardcopy, but it looks like this research was accomplished through an SSP proposal that resulted in a thesis. Brigitte Firmin is copied here for an FYI because I'm not sure if you two have had an opportunity to meet. Brigitte has replace me as the ESA Section 7 team lead and will assume the roles I previously had. After you take a look, see if you think this was what you are thinking of....ugh my memory..... I've copied Amy too in case she remembers more. She will still be working on the Section 7 consultation team with Brigitte. Anyway, I hope this helps!

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On Tue, Nov 5, 2019 at 9:39 AM Schaub, Mike <Schaub.Mike@epa.gov> wrote:

Hi Monica,

I hope this email finds you well. Back in May, we had a conference call with you and Amy

Trahan regarding DO criteria in the eastern LMRAP ecoregion. One thing you mentioned at that time was a study by Jeff Powell that made the following conclusions (based on our notes from the call):

- Alabama study (Jeff Powell) indicated that DO levels below 4mg/L may not be adequate for fish species that serve as hosts for molluscan larvae (glochidia).
- Host species impacts may affect ability of glochidia to attach/drop off in favorable habitat or at favorable times (due to fish avoidance of low DO areas).

Would you happen to have the study by Jeff Powell that indicated these findings?

Many thanks!

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